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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,219	05/19/2005	Akihiko Ohta	2005_0407A	3226

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WENDEROTH, LIND & PONACK, L.L.P.  
2033 K STREET N. W.  
SUITE 800  
WASHINGTON, DC 20006-1021

EXAMINER

KERNS, KEVIN P

ART UNIT PAPER NUMBER

1725

DATE MAILED: 10/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/527,219	<b>Applicant(s)</b> OHTA ET AL.	
	<b>Examiner</b> Kevin P. Kerns	<b>Art Unit</b> 1725	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-11 is/are rejected.
- 7) ☒ Claim(s) 6 and 8 is/are objected to.
- 8) ☒ Claim(s) 1-11 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/9/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicants' election of Group Ib (claims 5-11) in the reply filed on September 29, 2006 is acknowledged. Because the applicants did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). In response to the examiner's telephone call to the applicants' attorney, Matthew Jacob, on September 27, 2006, it is noted that the prior restriction requirement dated August 29, 2006 has been modified from the incorrect species restriction of Group Ia (claims 1-4 and 9-11) and Group Ib (claims 5-8) to the following correct species restriction:

Group Ia, claims 1-4, drawn to a welding method using a welding material having a low transformation temperature, and performing arc welding by using only a rare gas or a rare gas mixed with oxygen as a shielding gas.

Group Ib, claims 5-11, drawn to a welding method using a welding material having a low transformation temperature, wherein additional welding is conducted while avoiding heat history of the welding material by welding temperature.

As a result, an Office Action for Group Ib (claims 5-11) follows.

### ***Information Disclosure Statement***

2. The information disclosure statement filed March 9, 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all

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other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. In this instance, JP 61-16230 B2 is not provided (instead, the incorrect document JP 61-16230 A was provided). In addition, JP 54-130451 A includes the incorrect abstract of JP 56-53570. However, an abstract of JP 54-130451 was obtained and considered.

### ***Drawings***

3. Figures 3 and 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

In this instance, the legal phraseology "characterized in that" and "consisting of" should be replaced appropriately with similar terms, such as "including".

5. The disclosure is objected to because of the following informalities: on page 11, 15<sup>th</sup> and 17<sup>th</sup> lines, it is unclear what is meant by "JIS:SM570Q" and "JIS:YGW21", respectively. On page 11, 18<sup>th</sup> line, replace "Mu" with "Mn". Appropriate correction is required.

### ***Claim Objections***

6. Claims 6 and 8 are objected to because of the following informalities: in claim 6, last line, insert "an" before "end". In claim 8, 1<sup>st</sup> line, replace "claims" with "claim" before "5". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 5-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 5, it is unclear what is meant by "A welding method for a welding method". It is believed that "for a welding method" should be either deleted or replaced appropriately.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted step is providing an "initial" step of welding, prior to the step of "additional" welding.

With regard to claim 5, it is unclear what is meant by "avoiding heat history".  
What is the "heat history" of the welding material?

With regard to claim 5, it is unclear what is meant by "by welding temperature".  
Does this mean providing "control" of the welding temperature and/or welding current to affect the properties of the welding material?

Claim 6 recites the limitations "the upper side", "the side face", "the lower side", and "the welding toe part". There is insufficient antecedent basis for these limitations in the claim.

With regard to claim 7, the phrase "may become" is indefinite, as it broadly recites an optional function of being "linear". It is suggested to replace "may become" with "is" to more distinctly define this limitation.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 5-8 insofar as definite (in view of the 35 USC 112, 2<sup>nd</sup> paragraph rejections) are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 3010211 in view of JP 54-130451.

JP 3010211 discloses an arc welding method using a shielding gas of rare gas (argon) mixed with oxygen (e.g. 98% argon and 2% oxygen) for repair welding of a welding material having a low transformation temperature (martensite transformation expansion at room temperature where the welding is complete or in its vicinity – page 2, 4<sup>th</sup> full paragraph of translation), such that the repair welding is controlled to avoid cracking (avoiding “heat history”) via control of welding temperature and other welding parameters (abstract; pages 2-4 of translation; and Figures 1-5). JP 3010211 does not

specifically disclose the step of “additional” welding (as best interpreted by the examiner as depositing an additional weld layer on a “pre-existing” weld bead.

However, JP 54-130451 discloses a method of reducing residual stress at a welded joint of a steel workpiece, in which the method includes the step of welding a final (additional) layer of deposited metal using an austenitic metal at an upper side to a lower side of a side face of the workpiece (Figures 2-4) to form a substantially linear weld line (Figure 4), followed by cooling to a temperature to cause martensitic transformation, such that the step of additional welding is advantageous for avoiding shrinkage of the deposited metal by the expansion due to transformation from austenite into martensite, thus reducing embrittlement and residual stress at the weld zone (abstract; and Figures 1-4).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the arc welding method disclosed by JP 3010211, by using the method of reducing stress by welding an additional layer, as taught by JP 54-130451, in order to avoid shrinkage of the deposited metal by the expansion due to transformation from austenite into martensite, thus reducing embrittlement and residual stress at the weld zone (JP 54-130451; abstract).

12. Claims 9-11 insofar as definite (in view of the 35 USC 112, 2<sup>nd</sup> paragraph rejections) are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 3010211 in view of JP 54-130451, as applied to claims 5-8 above, and further in view of JP 59-85378.



JP 3010211 (in view of JP 54-130451) disclose and/or suggest the features of claims 5-8. Neither JP 3010211 nor JP 54-130451 specifically discloses that only rare gas is used as the shielding gas.

However, JP 59-85378 discloses a TIG welding method that includes providing a rare gas alone (pure argon) as the shielding gas, such that the use of pure argon during welding obtains an excellent oxidation state of the penetration bead with no internal defect in the weld zone (abstract; pages 1-4 of translation; Table; and Figures 1-4).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the arc welding method disclosed by JP 3010211, by using the method of reducing stress by welding an additional layer, as taught by JP 54-130451, in order to avoid shrinkage of the deposited metal by the expansion due to transformation from austenite into martensite, thus reducing embrittlement and residual stress at the weld zone, and by further using pure argon as the shielding gas, as disclosed by JP 59-85378, in order to obtain an excellent oxidation state of the penetration bead with no internal defect in the weld zone (JP 59-85378; abstract; and Table).

### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns *Kevin Kerns 10/11/06*  
Primary Examiner  
Art Unit 1725

*KPK*

kpk

October 11, 2006